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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

AWOKOLA ET AL.

CASE NO: FA1002 US NA

SERIAL NO: 09/873,714

GROUP ART UNIT: 1762

FILED: JUNE 4, 2001

EXAMINER: E. TSOY

FOR: PROCESS FOR MULTILAYER  
COATING OF SUBSTRATES

**REPLY BRIEF**

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 C.F.R. § 41.41, the following is a Reply Brief filed, in triplicate,  
in response to the Examiner's Answer mailed on July 14, 2006.

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## **I. STATUS OF CLAIMS**

Claims 1-3, 6, 8, 10, and 13 stand rejected and are the subject of this Appeal. Originally-filed Claims 4-5, 7, 9, and 11-12 have been canceled.

## **II. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Whether Claims 1-3, 6, 10, and 13 are obvious under 35 U.S.C. § 103(a) in view of Maag *et al.* (DE-A-197 57 082, WO 99/26733, or U.S. Patent No. 6,531,188) in further view of Richard (U.S. Patent No. 5,091,211).

Whether Claim 8 is obvious under 35 U.S.C. § 103(a) in view of Maag *et al.* in further view of Richard in further view of Brehm *et al.* (U.S. Patent No. 5,700,576).

## **III. ARGUMENT**

### **A. APPLICANTS' CLAIM 1 INVENTION IS NONOBVIOUS OVER MAAG ET AL. IN VIEW OF RICHARD**

#### **1. Maag *et al.* in Combination with Richard Does Not Disclose Every Element of Applicants' Claim 1 Invention**

The Examiner states that Maag *et al.* discloses any type of alcohol for preparing the methacrylic acid ester. Applicants agree, but the Claims of the present invention select *specific* monofunctional (meth)acrylic acid esters, namely cycloaliphatic (meth)acrylic acid esters (Claim 1) and specifically isobornyl (meth)acrylate (Claim 8). These cycloaliphatic (meth)acrylic acid esters are not disclosed in Maag *et al.*, and they are not suggested therein, nor in Richard. To establish a *prima facie* case of obviousness, there must be some suggestion in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference to produce Applicants' Claimed invention. MPEP § 2143.01(I). A broad disclosure of the use of any alcohol in the preparation of a (meth)acrylic acid ester is *not* a suggestion to use the specific monofunctional (meth)acrylic acid esters Claimed by Applicants. See generally MPEP § 2144.08(II) ("The fact that a Claimed species or subgenus is encompassed by a prior art genus is not sufficient by itself to establish a *prima facie* case of obviousness.").

The Examiner also states that "where the Claimed and prior art products are produced by identical or substantially identical processes, Claimed properties or

functions are presumed to be inherent.” Examiner’s Answer, at 5, ¶ 1. However, the combination of the compositions of Maag *et al.* and Richard are hypothetical compositions, which do not actually exist in the prior art, and therefore these compositions cannot be identical with a composition of the present invention and the Claimed properties cannot be presumed to be inherent in the Maag *et al.*/Richard combination. See, e.g., *In re Shetty*, 566 F.2d 81, 86 (CCPA 1977) (“[T]he inherency of an advantage and its obviousness are entirely different questions. That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown.”) (quoting *In re Spormann*, 363 F.2d 444, 448 (CCPA 1966)). In any event, there was no suggestion to combine teachings of Maag *et al.* and Richard with the expectation to get compositions producing no edge marks when overcoated. See MPEP § 2143.01(III) (“The mere fact that references *can* be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.”) (citing *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990)) (emphasis in original). And, assuming *arguendo* that Maag *et al.* and Richard could be combined, the combination would not lead to the present invention (combination: radiation curable compositions with phosphoric acid esters on vinyl resin layers, but without cycloaliphatic acid esters and radiation curable compositions containing any kind of reactive diluents, but without phosphoric acid esters).

## **2. The Examiner’s Interpretation of the Richard Disclosure is Inaccurate**

In relation to Richard, the Examiner states that this reference discloses that addition of phosphoric acid ester provides strong adhesive bond to *metal* and plastic substrates. Applicants believe that this statement is inaccurate. The relevant paragraph in question is at column 1, lines 55-60.<sup>1</sup> Indeed, the wording in that paragraph is a bit misleading, but Applicants submit that the correct interpretation is that the coating compositions of Richard (with the phosphoric acid esters) show a strong adhesive bond to plastic substrates. The misleading part is “while the coating

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<sup>1</sup> “A surprising feature of the invention involves the discovery that while the coating compositions of the invention are known to provide strong adhesive bonds to metal substrates, the same coatings have failed to provide bonds of satisfactory strength on synthetic plastic substrates.”

compositions of the invention are known to provide strong adhesive bonds to metals. . . .” This statement should be interpreted as the coating compositions of the Richard invention, that is, comprising radiation-curable acryloyl urethane (see col. 1, lines 47-50), but *without the phosphoric acid ester*. If the statement is interpreted as the Examiner suggests, that is, that the coating compositions comprise radiation-curable acryloyl urethane with the phosphoric acid ester, the coating compositions of Richard would have been already known in the prior art. That is, there would have been no invention in Richard of coatings with the phosphoric acid ester. Applicants’ interpretation is confirmed in the remainder of the quoted section, which refers directly to the previous section: “the same coatings have failed to provide satisfactory adhesive bonds to plastics.” If “same coatings” refers to coatings with phosphoric acid ester, then the remainder of Richard is superfluous as teaching what was already known in the art. Applicants submit that this interpretation cannot be correct and that the sentence must be interpreted as referring to coatings without phosphoric acid ester.<sup>2</sup>

**B. APPLICANTS’ CLAIM 8 INVENTION IS NONOBVIOUS OVER MAAG ET AL. IN VIEW OF RICHARD IN FURTHER VIEW OF BREHM ET AL.**

The teaching of Brehm *et al.* is presented by the Examiner in an incomplete form. See Examiner’s Answer, at 5, ¶ 5. The entire teaching of Brehm *et al.* includes any monofunctional reactive thinners or, *alternatively*, organic solvents that can be used to provide the composition the desired flow properties, which corresponds to the general role of thinners. The coating compositions of Brehm *et al.* are used for coating plastics (column 1, lines 9-10), such as molded articles that are formed of thermoplastic materials, for example, used as structural elements for various purposes, including automobile parts (column 6, lines 32-42). Furthermore, the teaching of Brehm *et al.* is directed to scratch and weather resistant coatings (column 6, lines 32-35), that is, to the outer coating layer on a plastic substrate and

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<sup>2</sup> Further evidencing Applicants’ interpretation is the nature of Richard’s teaching. Richard discloses the improvement of coating compositions of the prior art by adding phosphoric acid esters to increase adhesive bonds to plastics. See, e.g., Title of Patent (“Coating Method Utilizing Phosphoric Acid Esters”); see also col. 1, lines 46-54. Hence, nothing is disclosed in Richard about improving the adhesive bonds of coatings to metals by adding phosphoric acid esters.

not to the primer surfacer layer directly on metal substrates. Therefore, no relation can be seen between the teachings of Richard and Maag *et al.* on one hand and the teaching of Brehm *et al.* on the other. There is no motivation to combine the teaching of Brehm *et al.*, that is, the relatively insignificant point that generally, besides organic solvents, monounsaturated acrylic acid esters can be used as thinner, with those of Richard and Maag *et al.* Thus, it would not have been obvious to combine the quite different teachings of Brehm *et al.*, Maag *et al.*, and Richard to produce Applicants' Claim 8 invention with the expectation to achieve primer surfacer layers with good adhesion to metal and without having edge marks when overcoated with topcoats.

If the Examiner only wants to show that several monofunctional reactive thinners can generally be used in UV-curable compositions, no reference is needed for that—this is prior art knowledge anyway. The specific choice of isobornyl (meth)acrylate, however, is one feature of the Claim 8 invention, and, as Brehm *et al.* is only a secondary reference (see Examiner's Answer, at 9, ¶ 4), a person skilled in the art would not use the teaching of Brehm *et al.* with reasonable expectation to provide coatings with good adhesion on metal and coatings without edge marks. The general function of thinners, that is of reactive diluents and/or organic solvents to improve flow properties, must be seen in relation to other required properties of the composition/coating.

### **C. APPLICANTS' 132 DECLARATION IS VALID AND DEMONSTRATES UNEXPECTED RESULTS OVER THE CITED REFERENCES**

#### **1. The 132 Declaration Demonstrates Operability and Superiority of Applicants' Claimed Invention**

Contrary to the Examiner's assertions, Applicants' 132 Declaration does not show inoperability of their invention. Admittedly, a number of less preferred monounsaturated reactive diluents, including methyl methacrylate, are cited in Applicants' *Specification*. See col. 4, lines 3-14, of Applicants' *Specification*. Applicants' *invention*, however, is defined by the *Claims*. See, e.g., *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) ("It is axiomatic that the Claims define the invention which an applicant believes is patentable."). Reactive diluents covered by

Claim 1 are “free-radically polymerizable reactive diluent[s] comprising at least one (meth)acrylic acid ester having an olefinic double bond, said at least one (meth)acrylic acid ester being formed by reacting (meth)acrylic acid with at least one cycloaliphatic alcohol.” An interpretation of Claim 1 that includes the less preferred and *unClaimed* monounsaturated reactive diluents is unreasonable and inaccurate. *Cf.* MPEP § 2111 (“During patent examination, the pending Claims must be ‘given their broadest *reasonable* interpretation consistent with the specification.’”) (*quoting In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000) (emphasis added)). Applicants’ 132 Declaration thus demonstrates operability and superiority of the Claim 1 invention and inoperability of *unClaimed* subject matter. As such, the 132 Declaration is valid.

The 132 Declaration was also attacked as lacking evidence of unexpected results over Claimed ranges. Even if the surfacer composition of Maag *et al.* has components in amounts overlapping Claimed ranges, however, the compositions of the present invention have other features different from the composition of Maag *et al.* The present invention includes the combination of all the Claimed features, which in their interaction lead to the resultant superior coatings and consequently the nonobviousness of the invention.

## **2. The Criticality of Cycloaliphatic (Meth)Acrylic Acid Ester Over Non-Cycloaliphatic (Meth)Acrylic Acid Ester is Irrelevant**

The Examiner states that the 132 Declaration of Löffler fails to show criticality of cycloaliphatic (meth)acrylic acid ester over non-cycloaliphatic (meth)acrylic acid ester. In connection with page 4 of the Examiner’s Answer, the Examiner states on page 7 that comparison should have been made between, for example, hexyl (meth)acrylate and cyclohexyl (meth)acrylate, which would give a comparison between diluents differing only in cyclic/non-cyclic structure. It is irrelevant, however, to compare diluents with cyclic structures with those having the equivalent non-cyclic structure. First, hexyl (meth)acrylate is an atypical monomer for use as a reactive diluent in UV compositions, and, in any event, it is neither disclosed nor suggested in any of the references cited by the Examiner. Applicants instead chose comparative diluents that are disclosed in the Examiner’s references. See MPEP § 716.02(e)

("An affidavit or declaration under 37 CFR 1.132 must compare the Claimed subject matter with the closest prior art to be effective to rebut a *prima facie* case of obviousness."). Second, each non-cyclic acid ester does not have a cyclic equivalent and each cyclic acid ester does not have a non-cyclic equivalent. For example, methyl (meth)acrylate and ethyl (meth)acrylate do not have cyclic equivalents, and isobornyl (meth)acrylate does not have a non-cyclic equivalent. Thus, the Examiner's suggested comparison is not even feasible, let alone the closest prior art.<sup>3</sup>

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<sup>3</sup> Applicants note, however, that the declaration does show criticality of isobornyl (meth)acrylate over other *mono-unsaturated acrylic acid esters*, which is relevant for Claim 8. Therefore, using isobornyl (meth)acrylate is not an obvious choice for the reactive diluent of Maag *et al.* in view of Richard in further view of Brehm *et al.*



#### IV. SUMMARY

In regards to the remainder of the Examiner's assertions in the Examiner's Answer, Applicants incorporate by reference the Appeal Brief in its entirety.

For the reasons set forth above and in the Appeal Brief, the Board of Patent Appeals and Interferences is respectfully requested to reverse the final rejection of pending Claims 1-3, 6, 8, 10, and 13 and indicate allowability of Claims.

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Application No: 09/873,714  
Filing Date: June 4, 2001  
First Named Inventor: Morenike Awokola  
Title: Process For Multilayer Coating of Substrates  
Attorney Docket: FA1002 US NA

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(to be used for all correspondence after initial filing)

Application Number 09/873,714

Filing Date June 4, 2001

First Named Inventor Morenike Awokola

Group Art Unit 1762

Examiner Name Elena Tsoy

Total Number of Pages in This Submission

29

Attorney Docket Number

FA1002 US NA

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